

**** AGENDA ****

City Commission Study Session

Wednesday, April 13th, 2016

Conference Room 1AB

516 Mechanic Street

10:00 am

- Discuss Becker Addition Drainage
- Cottonwood River Water Rights Purchases
- RHID

- **Executive Session**

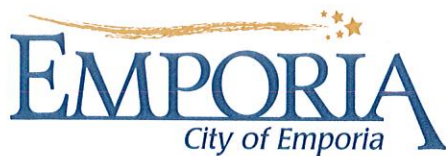
City County Joint Luncheon
County Host

Tentative Agenda for April 20th City Commission Meeting

- City Commission Reports and Comments
- Minutes
- Bills List/Payroll
- Budget
- Set Bid Date & Time for Manhole Rehab
- Set Bid Date & Time for CIPP
- Public Comment
 - Proclamation Arbor Day 2016
 - Proclamation Earth Day 2016

- C.A.R.E Awards for NRAB
- 24th Ave. TIF Hearing
- ESG Grants for Catholic Charities, S.O.S, Plumb Place
- Report From City Manager on City Activities
- State of City Speech
- Executive Session
- Adjourn Sine Die

**If you need accommodations due to a disability to participate in this event, meeting, or activity, or alternative format of written materials contact City of Emporia ADA Coordinator at least 48 hours before the event at 620-343-4247*



April 8, 2016

TO: Mayor Giefer and City Commissioners
FROM: City Manager Mark McAnarney
RE: Becker Drainage

We will be make a presentation at your Study Session on several financing alternatives for the Becker Drainage project if approved by the City Commission. Mary Carson will be forwarding some additional information to the city over the weekend.

If you have any questions or are in need of further information, please feel free to contact me.

Memo

TO: City Commission

FROM: Jim Witt, Assistant City Manager

CC: Department Heads

DATE: April 7, 2016

SUBJECT: Cottonwood River Water Rights

Staff has compiled a brief report regarding the options that could be use to put the City's existing Cottonwood water rights into service. The report focuses on the alternatives of integrating our water rights on the Cottonwood into our daily supply. This was part of the Commission Goals for 2015-2017. Additional information may be presented regarding the purchase and/or acquisition of additional water rights for the City.

To: Emporia City Commission

From: Phillip Cooper, Water Treatment Plant Supervisor
Wes Weishaar, Engineering Technician

Date: April 8, 2016

Subject: Cottonwood River Water Rights

In late 2015, Phillip Cooper and Wes Weishaar were asked to research possible usage options for water rights currently owned and unused by the city of Emporia. The goal was for the City to be able to use the rights to pump water from the Cottonwood River and treat it, providing an additional source of potable water. Attached to this memo are the results of an initial water analysis done on the river both above and below the Wastewater Treatment Plant to determine any additional contaminants in the water, or treatment required. In summary, the results of the analysis showed that above the WWTP, no additional treatment would be required, while the pH was significantly affected below the WWTP. For this reason, we believe the Cottonwood pumping location should remain where it is. The solutions researched are as follows:

1. Repurpose the current 12" sludge line from the existing water treatment plant (WTP) to the Cottonwood as a water supply line from the Cottonwood to the plant.
2. Construct a "package plant", independent of the current WTP, solely for water from the Cottonwood.
3. Construct a collector well on the Cottonwood to collect and pump water to the existing treatment plant.

Option 1 is the cheapest. The materials are already in place and can be implemented the soonest. There is, however, the potential for future variable costs associated with repurposing the sludge line. The WTP currently has nowhere to store its sludge so an alternate method of sludge removal would need to be used. This alternate method would involve installing an additional temporary sludge basin, dewatering device (approximately \$350K), and additional building in the already limited space at the WTP. The dewatered sludge would then need to be removed, either for agricultural application or to the current, larger holding facility. Not only does this prove logistically problematic, but also introduces a possibility of sludge odors closer to residential and commercial districts of Emporia.

There is also the age of the pipe itself to consider. The original plans for the installation of the pipe are dated 1954, making the three miles of cast iron pipe over 60 years old. This method may yield necessary pipe maintenance or repair in the near future. Attached is a map showing the route of the current sludge line in blue running from the Cottonwood River along Prairie up to the WTP.

Option 2 is more expensive than Option 1 but offers other benefits. The estimated cost is approximately \$4 per gallon-per-day of plant capacity. This is about \$8 million for a 2 MGD plant. This rough estimate was reached by speaking with other municipalities that have utilized these plants and the manufacturers. Approximately \$3 per gallon-per-day of this is for the plant itself while the other \$2M is more of a fixed cost associated with the acquisition of land and reformation of the existing

pumping station. The package plant has a small footprint (Approx. 100'x150' for the 2MGD plant) which would limit the amount of land that would need to be purchased if necessary. The biggest benefit of this option is flexibility. Since a package plant would treat the water independently from the existing treatment plant, it can be located conveniently. This is beneficial as the plant would need to be located outside the 500 year floodplain (also shown on attached map), per government regulations. Lastly, this option would require minimal additional maintenance. The plant itself could be monitored with software from the current WTP and would require only a daily physical walk-through.

Option 3 is the most expensive. A collector well greatly reduces the contaminants and suspended solids in water, and thus the cost of treatment, but not cheaply. They can be expected to cost \$20 million or more. Over the course of this research, no collector wells were found in communities similar to Emporia, while there are a few in the Kansas City area.

WatSim**RAW WATER
DEPOSITION POTENTIAL INDICATORS**

Emporia, KS WTP
RDJGarnett Branch
Tom LasserReport Date: 02-19-2016
Sample #: 672Sampled: 02-19-2016
at 1326

SATURATION LEVEL

Calcite (CaCO ₃)	3.68
Aragonite (CaCO ₃)	3.21
Anhydrite (CaSO ₄)	0.0257
Gypsum (CaSO ₄ *2H ₂ O)	0.0426
Calcium phosphate	0.00
Hydroxyapatite	0.00
Fluorite (CaF ₂)	0.00
Silica (SiO ₂)	0.00
Brucite (Mg(OH) ₂)	< 0.001
Magnesium silicate	0.00
Iron hydroxide (Fe(OH) ₃)	0.00
Siderite (FeCO ₃)	0.00
Strengite (FePO ₄ *2H ₂ O)	0.00
Calcium oxalate (CaC ₂ O ₄)	0.00
Ca pyrophosphate (CaP ₂ O ₇)	0.00
Zinc phosphate (Zn ₃ (PO ₄) ₂)	0.00

FREE ION MOMENTARY EXCESS (ppm)

Calcite (CaCO ₃)	1.13
Aragonite (CaCO ₃)	1.07
Anhydrite (CaSO ₄)	-1.1%E+3
Gypsum (CaSO ₄ *2H ₂ O)	-949.80
Calcium phosphate	>-0.001
Hydroxyapatite	-425.89
Fluorite (CaF ₂)	-30.73
Silica (SiO ₂)	-120.45
Brucite (Mg(OH) ₂)	-3.32
Magnesium silicate	-199.80
Iron hydroxide (Fe(OH) ₃)	>-0.001
Siderite (FeCO ₃)	-0.0310
Strengite (FePO ₄ *2H ₂ O)	>-0.001
Calcium oxalate (CaC ₂ O ₄)	-0.216
Ca pyrophosphate (CaP ₂ O ₇)	-0.00163
Zinc phosphate (Zn ₃ (PO ₄) ₂)	-0.0421

SIMPLE INDICES

Langelier	0.654
Ryznar	6.41
Puckorius	6.10
Larson-Skold Index	0.693
C.C.P.P.	5.14

BOUND IONS

	TOTAL	FREE
Calcium	110.30	95.00
Carbonate	3.30	0.934
Phosphate	0.00	0.00

CHEMICAL PROPERTIES

D.I.C. (mg/L C)	59.59
Pb solubility(ug/L)	1.51
Cu solubility(mg/L)	1.79
Zn solubility(mg/L)	4.52
PPO ₄ solubility(mg/L)	2.49
PO ₄ solubility(mg/L)	3.20

OPERATING CONDITIONS

Temperature (°F)	77.00
Time(mins)	3.00

Hawkins Water Chemicals Group
3100 East Hennepin Avenue, Minneapolis, MN 55413

WatSim

WATER CHEMISTRY INPUT

Emporia, KS WTP
RDJ

Garnett Branch
Tom Lasser

Report Date: 02-19-2016
Sample #: 672

Sampled: 02-19-2016
at 1326

CATIONS

Calcium (as Ca)	110.30
Magnesium (as Mg)	23.60
Sodium (as Na)	17.05
Potassium (as K)	0.00
Ammonia (as NH ₃)	0.00
Iron (as Fe)	0.00
Manganese (as Mn)	0.00200
Aluminum (as Al)	0.00
Zinc (as Zn)	0.00
Boron (as B)	0.00

ANIONS

Chloride (as Cl)	18.40
Sulfate (as SO ₄)	136.00
"M" Alkalinity (as CaCO ₃)	242.00
"P" Alkalinity (as CaCO ₃)	0.00
Oxalic acid (as C ₂ O ₄)	0.00
Cyanide (as HCN)	0.00
Phosphate (as PO ₄)	0.00
Pyrophosphate (as PO ₄)	0.00
Silica (as SiO ₂)	0.00
Nitrate (as NO ₃)	0.00
Fluoride (as F)	0.00

PARAMETERS

pH	7.72
Temperature (°F)	77.00
Calculated T.D.S.	608.57
Calculated Cond.	695.50

COMMENTS

Hawkins Water Chemicals Group
3100 East Hennepin Avenue, Minneapolis, MN 55413

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RAW WATER DEPOSITION POTENTIAL INDICATORS

Emporia, KS WTP
Weaver

Garnett Branch
Tom Lasser

Report Date: 02-19-2016
Sample #: 672

Sampled: 02-19-2016
at 1326

SATURATION LEVEL

Calcite (CaCO ₃)	5.30
Aragonite (CaCO ₃)	4.62
Anhydrite (CaSO ₄)	0.0217
Gypsum (CaSO ₄ *2H ₂ O)	0.0360
Calcium phosphate	0.00
Hydroxyapatite	0.00
Fluorite (CaF ₂)	0.00
Silica (SiO ₂)	0.00
Brucite (Mg(OH) ₂)	< 0.001
Magnesium silicate	0.00
Iron hydroxide (Fe(OH) ₃)	2.18
Siderite (FeCO ₃)	0.0640
Strengite (FePO ₄ *2H ₂ O)	0.00
Calcium oxalate (CaC ₂ O ₄)	0.00
Ca pyrophosphate (CaP ₂ O ₇)	0.00
Zinc phosphate (Zn ₃ (PO ₄) ₂)	0.00

FREE ION MOMENTARY EXCESS (ppm)

Calcite (CaCO ₃)	2.24
Aragonite (CaCO ₃)	2.17
Anhydrite (CaSO ₄)	-1.2%E+3
Gypsum (CaSO ₄ *2H ₂ O)	-973.92
Calcium phosphate	>-0.001
Hydroxyapatite	-424.30
Fluorite (CaF ₂)	-33.37
Silica (SiO ₂)	-120.44
Brucite (Mg(OH) ₂)	-3.48
Magnesium silicate	-199.43
Iron hydroxide (Fe(OH) ₃)	< 0.001
Siderite (FeCO ₃)	-0.0163
Strengite (FePO ₄ *2H ₂ O)	>-0.001
Calcium oxalate (CaC ₂ O ₄)	-0.267
Ca pyrophosphate (CaP ₂ O ₇)	-0.00245
Zinc phosphate (Zn ₃ (PO ₄) ₂)	-0.0418

SIMPLE INDICES

Langelier	0.821
Ryznar	6.33
Puckorius	6.26
Larson-Skold Index	0.699
C.C.P.P.	8.26

BOUND IONS

Calcium	89.40	76.08
Carbonate	5.23	1.66
Phosphate	0.00	0.00

TOTAL

FREE

CHEMICAL PROPERTIES

D.I.C. (mg/L C)	58.98
Pb solubility(ug/L)	0.800
Cu solubility(mg/L)	1.08
Zn solubility(mg/L)	4.33
PPO ₄ solubility(mg/L)	3.22
PO ₄ solubility(mg/L)	2.30

OPERATING CONDITIONS

Temperature (°F)	77.00
Time(mins)	3.00

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3100 East Hennepin Avenue, Minneapolis, MN 55413

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WATER CHEMISTRY INPUT

Emporia, KS WTP
Weaver

Garnett Branch
Tom Lasser

Report Date: 02-19-2016
Sample #: 672

Sampled: 02-19-2016
at 1326

CATIONS

Calcium (as Ca)	89.40
Magnesium (as Mg)	21.20
Sodium (as Na)	48.60
Potassium (as K)	0.00
Ammonia (as NH ₃)	0.00
Iron (as Fe)	0.00100
Manganese (as Mn)	0.00800
Aluminum (as Al)	0.00
Zinc (as Zn)	0.00
Boron (as B)	0.00

ANIONS

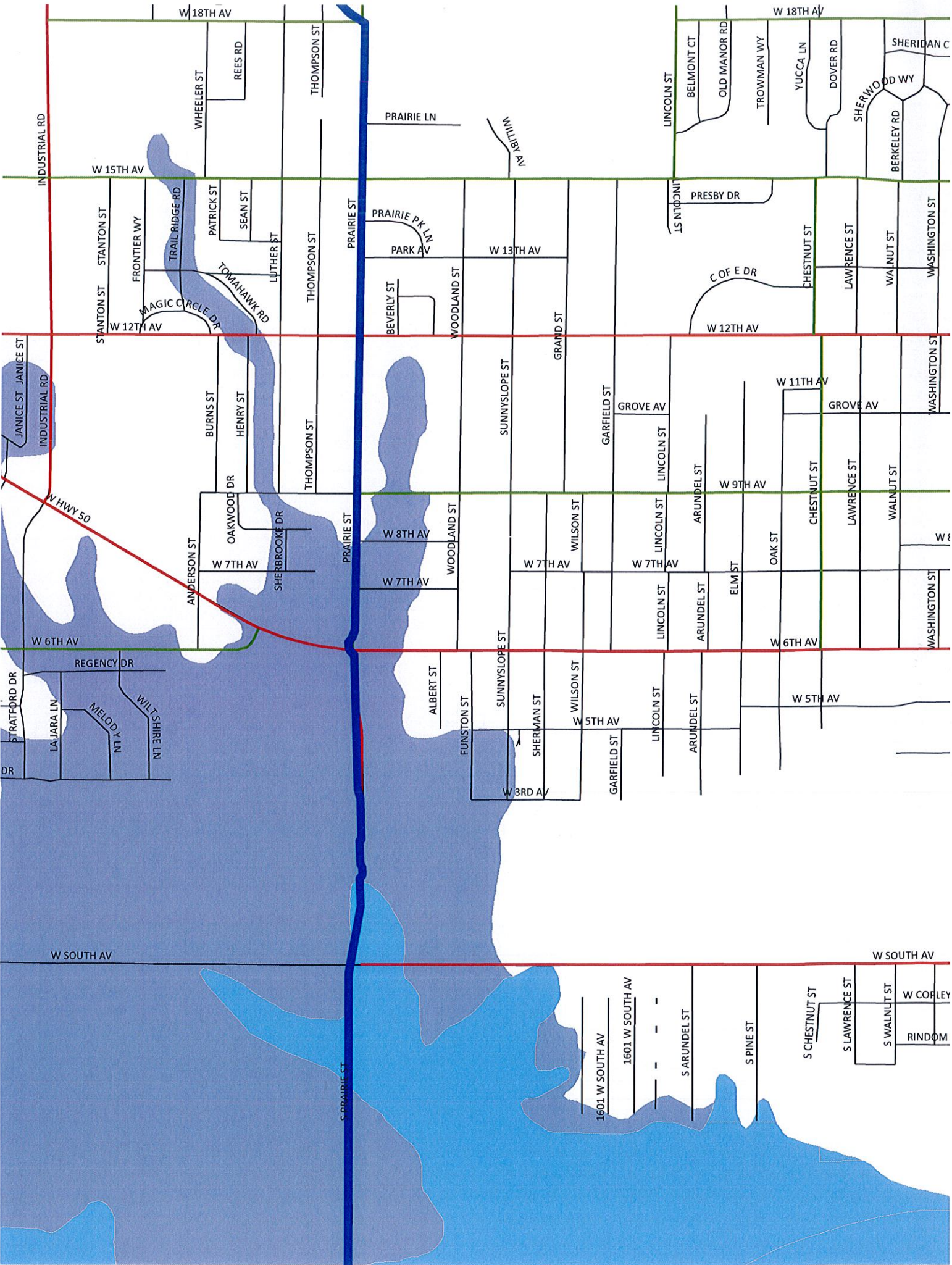
Chloride (as Cl)	20.20
Sulfate (as SO ₄)	137.00
"M" Alkalinity (as CaCO ₃)	245.00
"P" Alkalinity (as CaCO ₃)	0.00
Oxalic acid (as C ₂ O ₄)	0.00
Cyanide (as HCN)	0.00
Phosphate (as PO ₄)	0.00
Pyrophosphate (as PO ₄)	0.00
Silica (as SiO ₂)	0.00
Nitrate (as NO ₃)	0.00
Fluoride (as F)	0.00

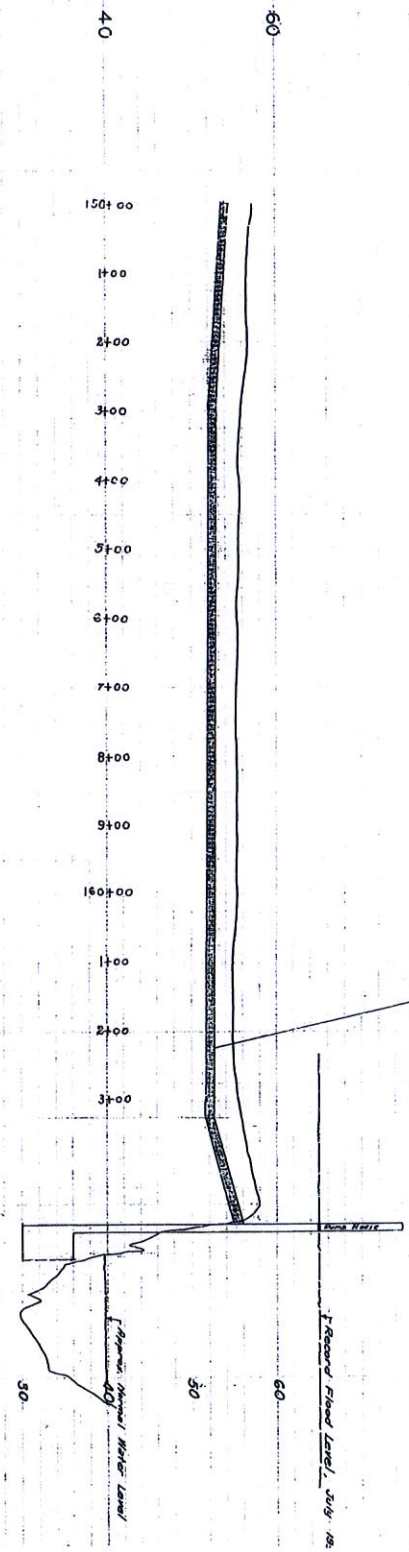
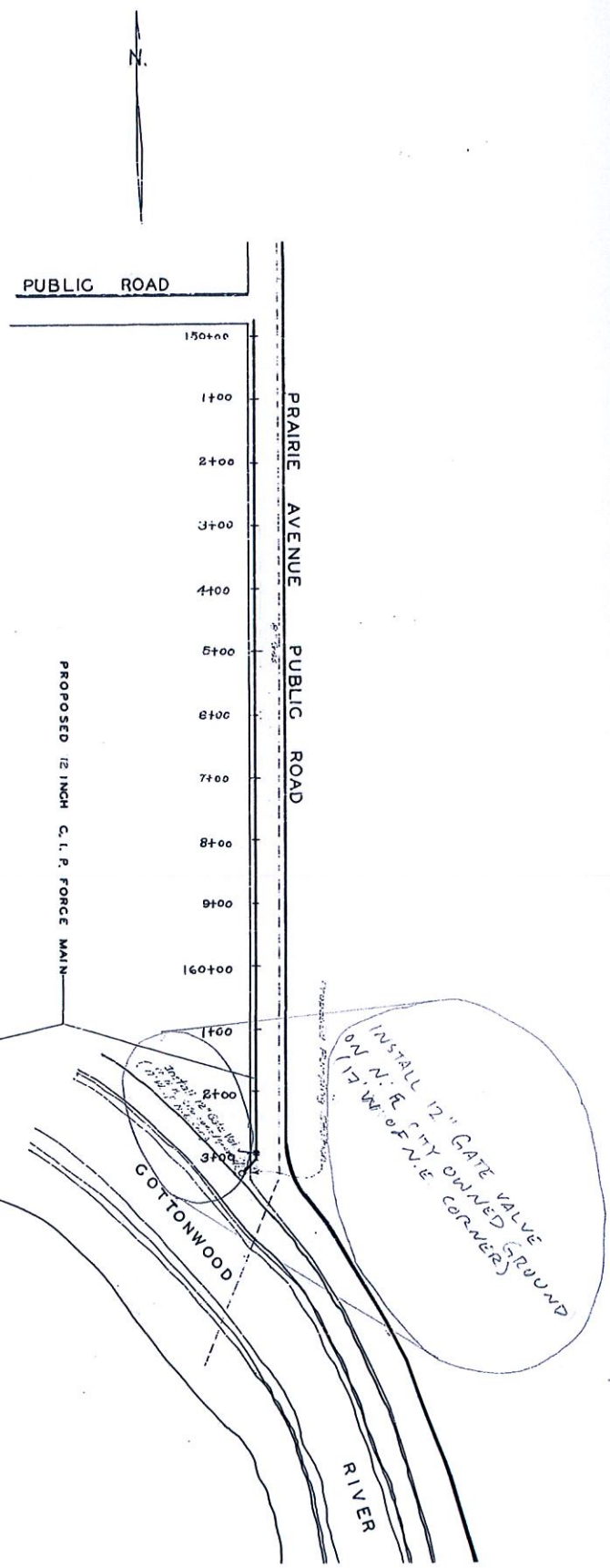
PARAMETERS

pH	7.97
Temperature (°F)	77.00
Calculated T.D.S.	616.36
Calculated Cond.	721.28

COMMENTS

Hawkins Water Chemicals Group
3100 East Hennepin Avenue, Minneapolis, MN 55413





EMPORIA WATER DE
 WATER SU
 IMPROVEM
 PROPOSED FORCE MAIN FRO
 RIVER TO TREATMENT
 1954

Memo

TO: City Commission

FROM: Jim Witt, Assistant City Manager

CC: Department Heads

DATE: April 7, 2016

SUBJECT: RHID

Staff will provide an update on the RHID program and interest that has been generated. This will include an overview regarding the establishment of a RHID District and the legal steps to achieve that. A copy of the relevant state statute is enclosed and will be reviewed.

2012 Statute

[Prev](#)[Article 52. - LOCAL RESIDENTIAL HOUSING](#)[Next](#)

12-5245. Same; adoption of development or redevelopment plan; contents; hearing, notice. (a) Upon receipt of the approval of the secretary as provided in subsection (c) of K.S.A. 12-5244, the governing body may proceed with the establishment of the district. Before doing so, the governing body shall adopt a plan for the development or redevelopment of housing and public facilities in the proposed district. Such plan may include plans for one or more projects, and the length of any individual project shall not exceed 15 years. The plan shall include, but not be limited to, the following:

- (1) The legal description and map required by subsection (a) of K.S.A. 12-5244.
- (2) The existing assessed valuation of the real estate in the proposed district, listing the land and improvement values separately;
- (3) A list of the names and addresses of the owners of record of all real estate parcels within the proposed district;
- (4) A description of the housing and public facilities project or projects that are proposed to be constructed or improved in the proposed district, and the location thereof;

(5) A listing of the names, addresses and specific interests in real estate in the proposed district of the developers responsible for development of the housing and public facilities in the proposed district;

(6) The contractual assurances, if any, the governing body has received from such developer or developers, guaranteeing the financial feasibility of specific housing tax incentive projects in the proposed district;

(7) A comprehensive analysis of the feasibility of providing housing tax incentives in the district as provided in this act, which shows the public benefits derived from such district will exceed the costs and that the income therefrom, together with other sources of funding, will be sufficient to pay for the public improvements that may be undertaken in such district. If other sources of public or private funds are to be used to finance the improvements, they shall be identified in the analysis.

(b) Prior to the adoption of the plan and designation of the district, the governing body shall adopt a resolution stating that the governing body is considering such action. The resolution shall provide notice that a public hearing will [be] held to consider the adoption of the plan and the designation of the district and contain the following elements:

- (1) The date, hour and place of the public hearing;
- (2) The contents of paragraphs (1) through (4) in subsection (a) of this section;
- (3) A summary of the contractual assurances by the developer and comprehensive feasibility analysis; and
- (4) A statement that the plan is available for inspection at the office of the clerk of the city or county at normal business hours;
- (5) A statement inviting members of the public to review the plan and attend the public hearing on the date announced in the resolution;

(c) The date fixed for the public hearing shall be not less than 30 nor more than 70 days following the date of the adoption of the resolution. The resolution shall be published at least once in the official newspaper of the city or county, with the final publication being not less than one week or more than two weeks preceding the date fixed for the public hearing.

(d) A certified copy of the resolution shall be delivered to the planning commission of the city or county and the board of education of any school district levying taxes on property within the proposed district. If the resolution is adopted by a city governing body, a certified copy also shall be delivered to the board of county commissioners of the county. If the resolution is adopted by a county governing body, it also shall be delivered to the governing body of any city located within three miles of such proposed district.

History: L. 1998, ch. 66, § 5; July 1.

[Prev](#)[Article 52. - LOCAL RESIDENTIAL HOUSING](#)[Next](#)